LWG
LOWER WILLAMETTE GROUP

February 10, 2006

Mr. Chip Humphrey and
Mr. Eric Blischke
U.S. EPA Region 10
Oregon Operations Office
811 S.W. 6th Avenue
Portland, Oregon 97204

Subject: **Portland Harbor RI/FS**
Round 2 Quality Assurance Project Plan Addendum 6: Sampling of Benthic Invertebrate Tissue

Dear Chip and Eric:

On behalf of the Lower Willamette Group, Integral Consulting has reviewed your additional comments regarding the subject document, provided by EPA in a letter dated December 6, 2005. These comments were discussed by Maja Tritt of Integral and Susan McGroddy of Windward Consulting with Ginna Grepo Grove, EPA QA Manager, on January 11, 2006. Your comments and LWG's responses are provided below.

1. Section B4.1, Page 10, Entry Number 3: Due to the limited amount of benthic tissue available for analysis, all tissue samples must be analyzed for organochlorine pesticides using the Axys method (Isotope-dilution SIM GC/MS techniques). The use of Method 8081 (GC/ECD techniques) by CAS for tissue samples should be removed from the QAPP.

LWG Response: Axys will complete the analyses for pesticides in invertebrate tissue samples by isotope dilution GC/MS. A co-extraction and fractionation procedure will be used, as described in QAPP Addendum 6. QAPP Addendum 6 provides information for both the Axys method and the standard EPA method 8081 in order to include both options for consideration, as was stated on page 4 of the QAPP addendum. This letter provides documentation of the decision that only the Axys method will be used for the tissue samples. Preparation of a revised QAPP is not required.

2. Section B4.1, Page 10, 2nd Paragraph: A matrix spike, matrix spike duplicate (MS/MSD) and replicate analysis at a minimum frequency of 1 set for each clam and mussel matrix must be collected for analysis. Only a field replicate analysis is recommended for the isotope dilution GC/MS techniques (i.e., PCB congeners, dioxins/furans and pesticides); matrix spike and matrix spike duplicate analyses are not necessary. Therefore, twice the minimum tissue mass required for all analyses must be collected at one clam and one mussel station for replicate analysis. In addition, sufficient clam and mussel tissue must be collected at one location for MS/MSD analysis for all analytes with the exception of the isotope dilution GC/MS method. The exact amount of tissue mass required is dependent on the amount of tissue required for analysis and the final extract volumes necessary to meet the method reporting and detection limits.

LWG Response: The LWG anticipates that sufficient clam and mussel tissue has been collected from Portland Harbor for analysis of at least one MS/MSD and field split, as described above in EPA's comment 2. The bioaccumulation studies targeted a total mass of 60 g of tissue per sample, which will also be sufficient for an MS/MSD. In case of sample size limitations, the LWG will use half the regular sample mass for the lab QC samples. This procedure was verbally agreed to by Ms. Grepo-Grove on January 11, 2006.

3. Section B4.2.2, Page 14: The QAPP states that sediment samples will be analyzed for organochlorine pesticides and PCBs by CAS using Methods 8081 and 8082 (GC/ECD techniques). The data generated for these analyses must be fully validated by EPA. The validation shall identify and list samples with potential pesticide detections but may have PCB and other organic material interferences. The list will be used by EPA to decide the archived sediment samples that may need further pesticide re-analysis using the Axys isotope dilution techniques. These options must be included it the QAPP.

LWG Response: The LWG is concerned with the impact that a delay in the availability of final sediment data would have on the completion of risk assessment activities and on the overall project schedule. In order to provide timely resolution of any issues related to matrix interferences in the pesticide analysis, the pesticide chromatograms will be evaluated by the LWG's chemists and data validation subcontractor as soon as they are available. The magnitude and identity of any interference will be evaluated in the context of data usability for risk assessment. LWG chemists and risk assessors will evaluate any interferences as follows:

- Determine the impact of the interferences on the usability of the data for the various risk assessment objectives
- Determine whether a need for further analysis exists in the context of data quality objectives for the risk assessment
- Determine the best course of action to obtain suitable data for risk assessment.

The evaluation of any pesticide interferences and the decision to complete further analyses will include the following considerations:

- Retention times of PCB interference check standards and potential for interference with specific pesticides when PCBs are present
- The identity of any potentially affected pesticide and its role in the risk assessment
- The magnitude of the interference, i.e., whether the interference constitutes a positive bias or potential false positive at concentrations near the baseline or at a higher concentration that may have greater implications on the risk assessment
- The potential benefit gained by any reanalysis and the implications to the project schedule.

Methods that may be considered for resolving interferences include analysis at Axys by HRGC/HRMS, analysis at CAS using GC/MS or GC/MS/MS, and other methods, depending on the nature of the interference and the concentration and identity of the affected pesticides.

Data packages will be provided to EPA for all of the pesticides and PCBs in sediment for the benthic tissue study.

We believe these procedures will address EPA's concerns related to sample size limitations, quality control samples, and pesticide data quality. Please contact us or Maja Tritt if you have questions or further comments.

Sincerely,

Jim McKenna

Bob Wyatt

Lower Willamette Group